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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,149	02/08/2001	Damian Hajduk	1012-123D2(99-90DIV2)	4223

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EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/779,149	HAJDUK ET AL.	
	Examiner	Art Unit	
	MY-CHAU T TRAN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49-55 and 59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-55 and 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Applicant's amendment filed 7/19/2004 is acknowledged and entered. Claims 49, and 52 have been amended. It is noted that applicant designation of the claims are improper since the amendment filed 5/10/2004 was ***not acknowledged and entered***, i.e. the amendment of claims 49, 52, and 59. Thus the limitation of "relating the monitored force to at least one physical property" of claim 49 should be underlined, claim 52 is designated as "presently amended", and claim 59 is designated as "previously presented". However, the examiner has entered the amendment with the improper claim listing filed 7/19/2004 since this Office Action is a Non-Final Office Action.

2. Claims 1-48, and 56-58 were canceled by the preliminary amendment filed on 2/08/2001.

3. Claims 49-55, and 59 are pending.

Priority

4. This application is a divisional of 09/580,024 filed 5/26/2000, which is now Patent 6,664,067.

Terminal Disclaimer

5. The terminal disclaimer filed on 9/15/2003 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US Patent No.

6,182,499, 6,438,497 B1, and 6,393,859 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

6. Claims 49-55, and 59 are treated on the merit in this Office Action.

Withdrawn Rejection

7. The rejections of claims 49-55, and 59 under 35 USC 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements has been withdrawn in light of applicant's amendments of claim 49.

8. However, upon further reconsideration and search the following new ground of rejection are made as follows. The examiner apologizes for any inconvenience this may have caused and the Office Action is a Non-Final Office Action.

New Rejection

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. Claims 49-52, 55, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Tagge et al. (US Patent 6,602,714 B1; *filing date 11/9/1999*).

The instant claim 49 recites a method of screening a combinatorial library of materials for at least one physical property. The method comprises the step of 1) mechanically perturbing an array of a plurality of materials by contacting at least two of the materials simultaneously with probes; 2) monitoring, with a sensor, a force exerted by each of the materials in response to the mechanical perturbations; and 3) relating the monitored force to a at least one physical property.

Tagge et al. disclose a workstation, apparatuses, and several methods for the high-throughput synthesis, screening, and/or characterization of combinatorial libraries (see e.g. Abstract; col. 1, lines 13-20; col. 3, lines 60-67; col. 5, lines 29-49). The screening and/or characterization step(s) is carried out in a highly parallel manner, wherein more than one compound is screened at a time (refers to contacting at least two of the material simultaneously) (col. 16, lines 55-60). One method for the high-throughput screening includes the method for determining viscosity or stiffness (see e.g. col. 23, lines 21-33). The method comprises the steps

of subjecting the array of well membranes (refers to probes and claim 59) to alternating electrostatic potential to cause vibrations of the combinatorial library of compounds in the array of wells (refers to the claimed mechanically perturbing step) (see e.g. col. 8, lines 45-47; col. 23, lines 24-33 and 58-65; col. 24, lines 4-9), measuring the vibrations with an optical detector (refers to a sensor) (the step refers to the claimed monitoring step) (see e.g. col. 23, lines 27-33; col. 24, lines 4-9), and correlating the change is mass of the sample, i.e. the viscosity or stiffness (refers to claim 52), with the amplitude of vibration of the membrane (refers to the relating step and claim 51) (see e.g. col. 23, lines 41-50; fig. 12). The array of wells are arrange in rows and columns in format such as 8X12, i.e. analyzing 96 samples (refers to claim 55). The combinatorial libraries include materials such as biological compounds, polymers, catalysts, and thermoelectric materials (see col. 16, lines 25-30). Thus the method of Tagge et al. anticipates the presently claimed method.

11. Claims 49-55, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Mansky et al. (US Patent 6,438,497 B1; *filing date 12/11/1998*).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The instant claim 49 recites a method of screening a combinatorial library of materials for at least one physical property. The method comprises the step of 1) mechanically perturbing an array of a plurality of materials by contacting at least two of the materials simultaneously with probes; 2) monitoring, with a sensor, a force exerted by each of the materials in response to the mechanical perturbations; and 3) relating the monitored force to a at least one physical property.

Mansky et al. teach a method of characterizing one or more material properties for each of five or more samples on a substrate having five or more sensors arranged in a sensor array (see e.g. Abstract; col. 1, lines 16-21; col. 2, lines 47-55; col. 3, lines 10-23). The properties measured include thermal, electrical, and mechanical properties such as viscosity and density of the sample (refers to claim 52) (see e.g. col. 2, line 53-55; col. 37, lines 3-6). The sensor array has the standardized format used in combinatorial chemistry application such as an 8X12 grid, i.e. the number of samples the sensor array can measure is between 5 to 96 samples (refers to claims 52-55) (see e.g. Abstract; col. 5, line 30-33). In one example, Mansky et al. disclose a method of measuring the heat capacity of materials (see e.g. col. 13, lines 45-64; col. 16, lines 38-46). The method comprises the steps of depositing the sample on the membrane (refers to the test fixture with the probe) in a sensor array (this step refers to contacting at least two of the material simultaneously), wherein the membrane on the flat side has a heater/thermometer (refer to the probe and sensor) printed, heat is allow to conduct through the membrane to heat the sample (refers to the claimed mechanically perturbing step), and measuring the thermal characteristics of the sample through the membrane by the heater/thermometer (refers to the claimed monitoring step) (see e.g. col. 15, lines 16-26). The heat capacity of the sample is

measure and plotted as a function of time (refers to the relating step and claim 51) (see e.g. col. 19, lines 53-67). In another example, Mansky et al. disclose a method of measuring the sample density with a surface launched acoustic wave device arranged in a sensor array (refers to claim 59) format to screen material properties (see e.g. col. 37, lines 29-39). The surface launched acoustic wave device serves as both a mechanical resonator and as a sensor for characterizing the material properties (see e.g. col. 37, lines 29-32). The method comprises the steps of coating the resonators (refers to the sensor) in the array with the test materials and placing the array in the magnetic field (refers to probes), the resonator experienced the changes in the mass loading due to the magnetic response of the material to the magnetic field, and the changes in the mass loading damps the resonance signal from the resonator (refers to claim 50) and these changes are correlated to the material's response to the applied field (refers to the relating step) (see e.g. col. 37, lines 54-67). Therefore the methods of Mansky et al. anticipate the presently claimed method.

12. Claims 49-50, 52, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsiev et al. (US Patent 6,393,895 B1; *filing date 8/12/1998*).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The instant claim 49 recites a method of screening a combinatorial library of materials for at least one physical property. The method comprises the step of 1) mechanically perturbing an array of a plurality of materials by contacting at least two of the materials simultaneously with probes; 2) monitoring, with a sensor, a force exerted by each of the materials in response to the mechanical perturbations; and 3) relating the monitored force to a at least one physical property.

Matsiev et al. teach an apparatus and a method for measuring properties of a liquid composition with a mechanical resonator wherein the property measure include temperature and viscosity (refers to claim 52) (see e.g. Abstract; col. 1, lines 12-18; col. 2, lines 10-32; col. 4, lines 27-43). The method comprises the steps of a) providing an array of sample wells (refers to a test fixture); b) placing each of said plurality of liquid compositions in a separate sample well; c) placing at least one of said plurality of tuning fork resonators (refers to the probes) in at least one sample well; d) applying a variable frequency input signal to a measurement circuit (refers to the sensor) coupled with each tuning fork resonator in said at least one sample wells (refers to contacting at least two of the material simultaneously) to oscillate each tuning fork resonator associated with each of said at least one sample well (refers to the claimed mechanically perturbing step); e) varying the frequency of the variable frequency input signal over a predetermined frequency range to obtain a frequency-dependent resonator response of each tuning fork resonator associated with said at least one sample well (refers to the claimed monitoring step); and f) analyzing the resonator response of each tuning fork resonator associated with said at least one sample well to measure a property of each liquid composition in said at least one sample well (refers to the relating step) (see e.g. col. 2, lines 10-32). In one

example, Matsiev et al. disclose a screening method to detect the presence of a test chemical in a fluid composition (see e.g. col. 12, lines 7-24). The presence of the test chemical in the fluid composition will cause the resonance frequency of the tuning fork resonator to decrease because of the increase mass and additional drag created by the additional molecules attached to the tuning fork via the receptor molecule (refers to the limitation of the forces exerted on the probes by the materials as functions of displacement of the material, i.e. claim 50) (see e.g. col. 12, lines 13-24). Thus the method of Matsiev et al. anticipates the presently claimed method.

13. Claims 49-52, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by McFarland et al. (US Patent 6,182,499 B1; *filing date 10/8/1997*).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The instant claim 49 recites a method of screening a combinatorial library of materials for at least one physical property. The method comprises the step of 1) mechanically perturbing an array of a plurality of materials by contacting at least two of the materials simultaneously with probes; 2) monitoring, with a sensor, a force exerted by each of the materials in response to the mechanical perturbations; and 3) relating the monitored force to a at least one physical property.

McFarland et al. teach an apparatus and methods for screening diverse arrays of materials with a mechanical resonator wherein the property measure include temperature and viscosity (refers to claim 52) (see e.g. Abstract; col. 1, lines 29-35; col. 4, lines 28-41; col. 8, lines 49-57). McFarland et al. disclose the method of measuring the viscosity of the arrays of materials using acoustic waves (see e.g. col. 4, lines 28-41; col. 11, lines 25-55). The method comprises the steps of 1) providing an array of wells wherein the liquid (i.e. the materials) to be tested is placed, 2) providing an array of resonator probes in association with an array of wells (refers to the test fixture of claim 59), 3) providing a network analyzer (refers to a sensor) that is connected to the array of resonator probes, 3) the analyzer excite oscillation of the resonator probe (refers to the claimed mechanically perturbing step) and receive the response from the resonator probe (refers to the claimed monitoring step) (see e.g. col. 11, lines 43-49; col. 11, line 66 to col. 12, line 14; fig. 5), 4) determining the property of the liquid by measuring the frequency of the resonator as a function of time and correlating it with the measured frequency of a set of standard liquids with known properties ((refers to the relating step) (see e.g. col. 4, lines 32-38; col. 11, lines 51-52). Thus the method McFarland et al. anticipates the presently claimed method.

Response to Arguments

14. Applicant's argument directed to the rejection under 35 USC 102(e) as being anticipated by Mansky et al. (US Patent 6,438,497 B1) filed 10/23/2003 was reconsidered and is found not persuasive for the following reasons.

Applicant contends that the method of Mansky et al. does not anticipate the presently claimed method because 1) Mansky et al. does not monitor with a sensor a force exerted on the

probe by the material, 2) Mansky et al. does not disclose the measurement of the property as a function of displacement of the probe or the sample as claimed in claim 50, and 3) Mansky et al. does not disclose a method which utilizes a probe with a test fixture as claimed in claim 59. Thus the method of Mansky et al. does not anticipate the presently claimed method.

Applicant's arguments are not convincing since the method of Mansky et al. does anticipate the presently claimed method. Mansky et al. does disclose 1) monitoring with a sensor a force exerted on the probe by the material (col. 37, lines 59-61; col. 15, lines 24-26), 2) measuring the property as a function of displacement of the probe (col. 37, lines 59-61) or the sample (col. 15, lines 24-26), and 3) a method which utilizes a probe with a test fixture (col. 15, lines 16-20). Thus the method of Mansky et al. does anticipate the presently claimed method.

15. Applicant's argument directed to the rejection under 35 USC 102(e) as being anticipated by Matsiev et al. (US Patent 6,393,895 B1; *filing date 8/12/1998*) filed 10/23/2003 was reconsidered and is found not persuasive for the following reasons.

Applicant contends that the method of Matsiev et al. does not anticipate the presently claimed method because Matsiev et al. does not 1) a physical linkage between the material and the sensor such that a mechanical perturbation by the probe results in a force on the sensor, 2) disclose the measurement of the property as a function of displacement of the probe or the sample as claimed in claim 50, and 3) disclose a method which utilizes a probe with a test fixture as claimed in claim 59. Thus the method of Matsiev does not anticipate the presently claimed method.

Applicant's arguments are not convincing since the method of Matsiev et al. does anticipate the presently claimed method. Matsiev et al. does disclose 1) a measurement circuit (refers to the sensor) coupled with each tuning fork resonator and obtain a frequency-dependent resonator response of each tuning fork resonator associated with said at least one sample well, i.e. a physical linkage between the material and the sensor such that a mechanical perturbation by the probe results in a force on the sensor (col. 2, lines 20-27), 2) measuring the property as a function of displacement of the sample (col. 12, lines 13-24), and 3) a method which utilizes a probe with a test fixture (col. 2, lines 10-32). Thus the method of Matsiev et al. does anticipate the presently claimed method.

16. Applicant's argument directed to the rejection under 35 USC 102(e) as being anticipated by McFarland et al. (US Patent 6,182,499 B1; *filing date 10/8/1997*) filed 10/23/2003 was reconsidered and is found not persuasive for the following reasons.

Applicant contends that the method of McFarland et al. does not anticipate the presently claimed method because McFarland et al. does not 1) a physical linkage between the material and the sensor such that a mechanical perturbation by the probe results in a force on the sensor, 2) disclose the measurement of the property as a function of displacement of the probe or the sample as claimed in claim 50, and 3) disclose a method which utilizes a probe with a test fixture as claimed in claim 59. Thus the method of McFarland does not anticipate the presently claimed method.

Applicant's arguments are not convincing since the method of McFarland et al. does anticipate the presently claimed method. McFarland does disclose 1) a network analyzer (refers

to a sensor) that is connected to the array of resonator probes and the array of resonator probes is in association with the array of wells wherein the sample is placed, i.e. a physical linkage between the material and the sensor and the and receive the response from the resonator probe, i.e. the mechanical perturbation by the probe results in a force on the sensor (col. 11, lines 43-49; col. 11, line 66 to col. 12, line 14; fig. 5), 2) measuring the property as a function of displacement of the probe (col. 11, lines 43-49; col. 11, line 66 to col. 12, line 14; fig. 5), and 3) a method which utilizes a probe with a test fixture (col. 11, line 66 to col. 12, line 14; fig. 5). Thus the method of McFarland et al. does anticipate the presently claimed method.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MY-CHAU T TRAN whose telephone number is 571-272-0810. The examiner can normally be reached on Mon.: 8:00-2:30; Tues.-Thurs.: 7:30-5:00; Fri.: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW WANG can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mct
August 18, 2004

PADMASHRI PONNALURI
PRIMARY EXAMINER